

WHAT IS CLAIMED IS:

1. Black iron-based particles comprising a FeTiO_3 - Fe_2O_3 solid solution or a mixed composition of a FeTiO_3 - Fe_2O_3 solid solution and an iron-based oxide having a spinel structure, and having a Ti content of from more than 10.0 atm% to 40.0 atm%, calculated as Ti, based on whole Fe, and a blackness (L^* value) of 6 to 13.

2. Black iron-based particles according to claim 1, wherein said iron-based oxide having a spinel structure is contained in such an amount that a ratio of a peak intensity of (220) plane of Fe_3O_4 - γ - Fe_2O_3 constituting the iron-based oxide having a spinel structure to a peak intensity of (104) plane of FeTiO_3 - Fe_2O_3 is 1:0.5 or less, when measured by an X-ray diffraction method.

3. Black iron-based particles according to claim 2, wherein said ratio of a peak intensity of (220) plane of Fe_3O_4 - γ - Fe_2O_3 constituting the iron-based oxide having a spinel structure to a peak intensity of (104) plane of FeTiO_3 - Fe_2O_3 is 1:0.01 to 1:0.45.

4. Black iron-based particles according to claim 1, wherein said black iron-based particles have a saturation

magnetization value of not more than 60 Am²/kg and an average particle diameter of 0.01 to 0.50 μm.

5. Black iron-based particles according to claim 1, wherein said black iron-based particles have a Ti content of 20 to 33.3 atm%, calculated as Ti, based on whole Fe, a saturation magnetization value of 0.1 to 40 Am²/kg, a blackness (L* value) of 6 to 12.5 and an average particle diameter of 0.04 to 0.24 μm.

6. Black iron-based particles according to claim 1, wherein said black iron-based particles have a BET specific surface area value of 6 to 30 m²/g and a tinting strength of 35 to 45.

7. Black iron-based particles according to claim 1, which further comprise a Na-Fe-Ti compound.

8. Black iron-based particles according to claim 7, wherein said Na-Fe-Ti compound is contained in such an amount that a ratio of a main peak intensity of the Na-Fe-Ti compound to a peak intensity of (104) plane of FeTiO₃-Fe₂O₃ is 0.01:1 to 1.00:1, when measured by an X-ray diffraction method.

9. Black iron-based particles according to claim 7, wherein said Na-Fe-Ti compound is $\text{NaFeTi}_3\text{O}_8$, NaFeTiO_4 or $\text{Na}_{0.75}\text{Fe}_{0.75}\text{Ti}_{0.25}\text{O}_2$.

10. Black iron-based particles according to claim 7, wherein said black iron-based particles have a saturation magnetization value of 0.1 to 60 Am^2/kg .

11. Black iron-based particles according to claim 1, which further comprise a blue pigment in an amount of 0.1 to 20 % by weight.

12. Black iron-based particles according to claim 11, wherein said black iron-based particles have a blackness (L^* value) of 6 to 12 and a tinting strength of 30 to 42.

13. Black iron-based particles a FeTiO_3 - Fe_2O_3 solid solution or a mixed composition of a FeTiO_3 - Fe_2O_3 solid solution and an iron-based oxide having a spinel structure, and having a Ti content of from more than 10.0 atm% to 40.0 atm%, calculated as Ti, based on whole Fe, a blackness (L^* value) of 6 to 13, a saturation magnetization value of 5 to 40 Am^2/kg and an average particle diameter of 0.04 to 0.24 μm .

14. Black iron-based particles comprising:

a $\text{FeTiO}_3\text{-Fe}_2\text{O}_3$ solid solution or a mixed composition of a $\text{FeTiO}_3\text{-Fe}_2\text{O}_3$ solid solution and an iron-based oxide having a spinel structure, and a Na-Fe-Ti compound,

and having a Ti content of from more than 10.0 atm% to 40.0 atm%, calculated as Ti, based on whole Fe, a saturation magnetization value of 0.1 to 60 Am^2/kg , a blackness (L^* value) of 6 to 13 and an average particle diameter of 0.04 to 0.24 μm , said Na-Fe-Ti compound being contained in such an amount that a ratio of a main peak intensity of the Na-Fe-Ti compound to a peak intensity of (104) plane of $\text{FeTiO}_3\text{-Fe}_2\text{O}_3$ is 0.01:1 to 1.00:1, when measured by an X-ray diffraction method.

15. Black iron-based particles comprising:

(1) 80 to 99.9 parts by weight of a $\text{FeTiO}_3\text{-Fe}_2\text{O}_3$ solid solution or a mixed composition of a $\text{FeTiO}_3\text{-Fe}_2\text{O}_3$ solid solution and an iron-based oxide having a spinel structure; and (2) 0.1 to 20 parts by weight of a blue pigment,

and having a Ti content of from more than 10.0 atm% to 40.0 atm%, calculated as Ti, based on whole Fe, a saturation magnetization value of 5 to 40 Am^2/kg , a blackness (L^* value) of 6 to 13 and an average particle

diameter of 0.04 to 0.24 μm .

16. Black iron-based particles according to claim 13, 14 or 15, wherein said iron-based oxide having a spinel structure is contained in such an amount that a ratio of a peak intensity of (220) plane of Fe_3O_4 - γ - Fe_2O_3 constituting the iron-based oxide having a spinel structure to a peak intensity of (104) plane of FeTiO_3 - Fe_2O_3 is 1:0.5 or less, when measured by an X-ray diffraction method.

17. A black non-magnetic toner comprising a binder resin and the black iron-based particles as defined in claim 1, 13, 14 or 15.